CONTENTS 1983

JANUARY/FEBRUARY

1 **Canal Diameter, Anteroposterior Compression Ratio, and Spondylotic Myelopathy of the Cervical Spine**
Hiroshi Ogino, Koichi Tada, Kozo Okada, Kazuo Yonenobu, Tomio Yamamoto, Keiro Ono, and Hideo Namiki

16 **Anterior Intervertebral Disc Excision and Bone Grafting in Cervical Spondylotic Myelopathy**
Zhi-Hu Zhang, Huafu Yin, Keqin Yang, Tanchen Zhang, Fangchun Dong, Gengding Dang, Si-Quan Lou, and Qinlin Cai

20 **The Developmental Segmental Sagittal Diameter of the Cervical Spinal Canal in Patients with Cervical Spondylosis**
Walter C. Edwards and Henry LaRocca

28 **Reduction of Radiation Dose in Radiologic Examination of Patients with Scoliosis**
Göran Hellström, Lars Irstam, and Alf Nachemson

31 **The Mechanical Consequence of Failure of Ossified Union in Attempted Posterior Spinal Fusion: A Canine Model**
Thomas K. Stonecipher, Ray Vanderby, Jr., Cesar A. Sciammarella, Shaw Shuh Lei, and John R. Fisk

35 **The Application of Pelvic Pins in Halo-Pelvic Distraction: An Anatomic Study**
John Kostuik and Michael Tooke

39 **Severe Neurofibromatosis Kyphoscoliosis in a Jehovah's Witness: Anterior and Posterior Spine Fusion Without Blood Transfusion**
Robert B. Winter and Claude Swayze

43 **Segmental Spinal Instrumentation of Congenital Scoliosis: A Report of Two Cases**
James Stoll and Wilton H. Bunch

48 **Congenital Absence of the Thoracic Pedicle: A Case Report**
Eric D. Strauss, Neil Kahanovitz, and Bernard Ghelman

50 **Anatomic Study of the Interrelation Between Lumbosacral Nerve Roots and Their Surrounding Tissues**
Mitsuo Hasue, Shinichi Kikuchi, Yozo Sakuyama, and Tsukasa Ito

59 **Biomechanical Analysis of Canine Intervertebral Discs After Chymopapain Injection: A Preliminary Report**
K. Wakano, R. Kasman, E. Y. Chao, D. S. Bradford, and T. R. Oegema

69 **A Quantitative Study of Trunk Muscle Strength and Fatigability in the Low-Back-Pain Syndrome**
Nobuharu Suzuki and Seiichi Endo

75 **Low-Back Impairment Rating Practices of Orthopaedic Surgeons**
Richard A. Brand and Thomas R. Lehmann

79 **Muscular Function in Chronic Low-Back Dysfunction**
Gary L. Soderberg and John O. Barr

86 **Bilateral Laminotomy and Discectomy for Segmental Lumbar Disc Disease: Decompression with Stability**
Larry D. Herron and Homer C. Pheasant

98 **The Electrodiagnostic Evaluation of Spinal Root Lesions**
Andrew Eisen and Maureen Hoirch

107 **Briefly Noted: Modified Brooks Fusion for an Os Odontoideum Associated with an Incomplete Posterior Arch of the Atlas: A Case Report**
Robert A. Callahan, Robin Lockwood, and Barth Green

109 Briefly Noted: Early Isolated Paraspinal EMG Abnormalities in Occult Carcinoma with Spinal Metastases: A Case Report
Ilo Soovere
111 Briefly Noted: Diastematomyelia and Scoliosis: Usefulness of CT Examination
Giovanni Battista Giordano and Marziano Cerisoli
112 Briefly Noted: Two-Stage Spondylectomy for Giant Cell Tumor of L4: A Case Report
John P. Lubicky, Nargis S. Patel, and Ronald L. DeWald
115 Briefly Noted: Arachnoiditis Ossificans: A Case Report Diagnosed with Computerized Axial Tomography
M. David Dennis, Edwin Altschuler, William Glenn, and Leon L. Wiltse
118 Letters

MARCH

EUROPEAN EDITION

121 The 1982 Volvo Award Competition for Research in Low-Back Pain
122 Load-Bearing Characteristics of Lumbar Facets in Normal and Surgically Altered Spinal Segments
Mark Lorenz, Avinash Patwardhan, and Ray Vanderby, Jr.
131 Lumbar Disc Herniation: A Controlled, Prospective Study with Ten Years of Observation
Henrik Weber
141 A Study of the Natural History of Back Pain: Part I: Development of a Reliable and Sensitive Measure of Disability in Low-Back Pain
Martin Roland and Richard Morris
145 A Study of the Natural History of Low-Back Pain: Part II: Development of Guidelines for Trials of Treatment in Primary Care
Martin Roland and Richard Morris
151 On the Mechanical Behaviour of Intervertebral Discs
K. B. Broberg
166 Observations of Pressures within Normal Discs in the Lumbar Spine
R. C. Quinnell, H. R. Stockdale, and D. S. Willis
170 Computed Tomography and Cryomicrotomy of Lumbar Spine Specimens: A New Technique for Multiplanar Anatomic Correlation
Wolfgang Rauschning
181 Computed Tomography of Bone Fragments in the Spinal Canal: An Experimental Study
Sven Lindahl, Jan Willén, and Lars Irstam
187 Lumbar Vertebral Canal Morphometry for Computerised Tomography in Spinal Stenosis
Stephen Eisenstein
192 Lumbar Spinal Canal Stenosis in Paget's Disease
George M. Weisz
199 Normal Kinematics of the Lumbar Spine and Pelvis
A. J. Thurston and J. D. Harris
206 Quantitative Power Measurement of Extensor Hallucis Longus: A Simple Objective Test in Evaluation of Low-Back Pain with Neurological Involvement
Alex Finsterbush, Uri Frankel, and Ron Arnon
211 Assessment of Abdominal and Back Extensor Function: A Quantitative Approach and Results for Chronic Low-Back Patients
Gary Smidt, Thomas Herring, Louis Amundsen, Mark Rogers, Ann Russell, and Thomas Lehmann

220 **The Iliac Crest Syndrome: A Treatable Cause of Low-Back Pain**
Jeremy C. T. Fairbank and John P. O'Brien

APRIL

225 **Trauma to Anomalous Cervical Spine**
George M. Weisz
228 **Successful Surgical Decompression of Spinal Extradural Metastases of Liposarcoma**
E. R. Bogoch, E. English, R. G. Perrin, and C. H. Tator
236 **Abnormalities of Aggregation, Thromboxane A_2 Synthesis, and ^{14}C Serotonin Release in Platelets of Patients with Idiopathic Scoliosis**
Yizhar Floman, Meir Liebergall, Gordon C. Robin, and Amiram Eldor
242 **Lateral Electrical Surface Stimulation for the Treatment of Progressive Idiopathic Scoliosis**
Jens Axelgaard and John Carlisle Brown
261 **The Surgical Treatment of Nerve Root Compression Caused by Scoliosis of the Lumbar Spine**
Antonio San Martino, Francesco M. D'Andria, and Corrado San Martino
266 **The Amount of Bone Mineral and Schmorl's Nodes in Lumbar Vertebrae**
Tommy Hansson and Bengt Roos
272 **Low-Back Pain in 40- to 47-Year-Old Men: Work History and Work Environment Factors**
Hans-Olof Svensson and Gunnar B. J. Andersson
277 **Low-Back Pain in Relation to Other Diseases and Cardiovascular Risk Factors**
Hans-Olof Svensson, Anders Vedin, Claes Wilhelmsson, and Gunnar B. J. Andersson
286 **The Innervation of the Lumbar Spine**
Nikolai Bogduk
294 **Anomalies of the Lumbosacral Nerve Roots: Review of 16 Cases and Classification**
Arvo Neidre and Ian MacNab
300 **Computed Tomography of Lumbar Disc Herniation**
Eikazu Hirofuji and Seisuke Tanaka
305 **The Use of *In Vivo* Lumbar Discography to Assess the Clinical Significance of the Position of the Intercrestal Line**
R. C. Quinnell and H. R. Stockdale
308 **A Low-Back Rating Scale**
Thomas R. Lehmann, Richard A. Brand, and Thomas W. O. Gorman
316 **Hip–Spine Syndrome**
C. M. Offierski and I. MacNab
322 **Lumbar Intervertebral Discolysis with Collagenase**
John W. Bromley and Jaime G. Gomez
325 **The Biomechanics of the Posterior Elements of the Lumbar Spine**
Gunnar B. J. Andersson
327 **The Mechanical Function of the Lumbar Apophyseal Joints**
M. A. Adams and W. C. Hutton
331 **Posterior Element Loads in Lumbar Motion Segments**
J. A. A. Miller, K. A. Haderspeck, and A. B. Schultz
338 **Compression Stresses in the Posterior Elements and Pathologic Consequences**
Malcolm I. V. Jayson

340 **Briefly Noted: Asymmetrical Facet Joints: Another Cause for the Sclerotic Pedicle**
Edward F. Downey, Jr., Stephen S. Nason, Massoud Majd, and William J. McSweeney
342 **Briefly Noted: Spinous Process Deviation: Predictive Value of a Radiologic Sign in Lumbar Disc Surgery**
G. Ravichandran
345 **Letters**

MAY/JUNE

347 **The Biomechanics of the Posterior Elements of the Lumbar Spine**
348 **Kinematics of Lumbar Intervertebral Foramen**
Manohar M. Panjabi, Koichiro Takata, and Vijay K. Goel
358 **CT in the Evaluation of Spine Infection**
Michael Brant-Zawadzki, Vincent D. Burke, and R. Brooke Jeffrey
365 **Locked Facets with Fracture of the Neural Arch of the Axis**
R. G. Dussault, B. Effendi, D. Roy, B. Cornish, and C. A. Laurin
368 **A Biomechanical Analysis of Posterior Cervical Fusions Using Polymethylmethacrylate as an Instantaneous Fusion Mass**
Richard Whitehill, Steven Reger, Nancy Weatherup, Carey Werthmuller, James Bruce, Phillip Gates, and Gerald Rollins
373 **Progression in Scoliosis: A 360° Change in 75 Years**
Vernon T. Tolo
378 **Comparison of the Biochemistry of Proteoglycans Isolated from Normal, Idiopathic Scoliotic and Cerebral Palsy Spines**
Theodore R. Oegema, Jr., David S. Bradford, Katherine M. Cooper, and Robert E. Hunter
385 **The Effect of the Milwaukee Brace on Spinal Decompensation in Idiopathic Scoliosis**
Sally Rudicel and Thomas S. Renshaw
388 **The Boston Brace in Thoracic Scoliosis: A Preliminary Report**
Edwin L. Laurnen, James W. Tupper, and Marr P. Mullen
396 **Anterior Decompression of the Spinal Cord for Neurological Deficit**
John R. Johnson, Kenton D. Leatherman, and Richard T. Holt
406 **Vertebral Body Replacement with Femoral Neck Allograft and Vascularized Rib Strut Graft: A Technique for Treating Post-Traumatic Kyphosis with Neurologic Deficit**
G. Grady McBride and David S. Bradford
416 **Comparison of Segmental Spinal Instrumentation Devices in the Correction of Scoliosis**
James W. Ogilvie and Edward A. Millar
420 **Surgical Management of Severe Thoracic Lordosis: A New Technique to Restore Normal Kyphosis**
David S. Bradford, Joseph M. Blatt, and Fred L. Rasp
429 **Lumbar Spinal Instability (Olisthesis) After Extensive Posterior Spinal Decompression**
Casey K. Lee
434 **Knodt Rod Distraction Lumbar Fusion**
Arthur H. White, Garnet Wynne, and Lloyd W. Taylor
438 **Briefly Noted: Meningitis Secondary to Retropharyngeal Abscess: Report of a Case Occurring in Association with Cervical Spine Fracture**
B. G. Benoit, N. A. Russell, C. W. Cole, A. J. M. Clark, and R. W. McIntyre
7A **Letter to the Editor**

JULY/AUGUST

443 **Temperature Effects on Feline Cortical and Spinal Evoked Potentials**
Douglas Gollehon, Neil Kahanovitz, and Leo T. Happel

447 **Trunk Muscle Myoelectric Activities in Idiopathic Scoliosis**
Mark Reuber, Albert Schultz, Thomas McNeill, and David Spencer

457 **Morphology of the Paravertebral Muscles in Adolescent Idiopathic Scoliosis**
Carl Zetterberg, Amelie Aniansson, and Gunnar Grimby

463 **Correction of Spinal Curvatures by Transcutaneous Electrical Muscle Stimulation**
Jens Axelgaard, Anders Nordwall, and John C. Brown

482 **An Experimental Evaluation of Spinal Flexibility with Respect to Scoliosis Surgery**
A. P. Halsall, D. F. James, J. P. Kostuik, and G. R. Fernie

489 **Spinal Fusions to the Sacrum in Adults with Scoliosis**
John P. Kostuik and Brad B. Hall

501 **Gait Abnormalities Arising From Latrogenic Loss of Lumbar Lordosis Secondary to Harrington Instrumentation in Lumbar Fractures**
Chester A. Hasday, Todd L. Passoff, and Jacquelin Perry

512 **Anterior Spinal Cord Decompression for Lesions of the Thoracic and Lumbar Spine, Techniques, New Methods of Internal Fixation Results**
John P. Kostuik

532 **Management of Thoracic and Lumbar Spine Fractures with Harrington Distraction Rods Supplemented with Segmental Wiring**
Charles E. Bryant and J. Andy Sullivan

538 **Spinal Arachnoiditis: What is the Clinical Spectrum? I.**
Gary S. Hoffman

541 **Spinal Arachnoiditis: What is the Clinical Spectrum? II. Arachnoiditis Induced by Pantopaque®/Autologous Blood in Dogs, A Possible Model for Human Disease**
Gary S. Hoffman, Charles A. Ellsworth, Eugene E. Wells, Walter A. Franck, and Robert W. Mackie

552 **Amitriptyline and Chronic Low-Back Pain: A Randomized Double-Blind Crossover Study**
Homer Pheasant, Alan Bursk, Jack Goldfarb, Stanley P. Azen, Joyce N. Weiss, and Lawrence Borelli

558 **Briefly Noted: Bilateral Partial Aplasia of the Atlas Definitive Treatment by Bilateral Anterior C1-C2 Buttress Fusion**
Rae R. Jacobs and Charles E. Rhoades

SEPTEMBER

EUROPEAN EDITION

559 **The Crush-Cleavage Fracture: A "New" Thoracolumbar Unstable Fracture**
Sven Lindahl, Jan Willén, Anders Nordwall, and Lars Irstam

570 **The Effect of Harrington Instrumentation on the Sagittal Configuration and Mobility of the Spine in Scoliosis**
Stig Aaro and Gunnar Öhlén

576 **Long-Term Anatomic and Functional Changes in Patients with Adolescent Idiopathic Scoliosis Treated by Harrington Rod Fusion**
Thomas Cochran, Lars Irstam, and Alf Nachemson

585 Calcitonin Treatment for Neurogenic Claudication
R. W. Porter and C. Hibbert
593 Lumbosacral Spinal Fibrosis (Spinal Arachnoiditis): Its Diagnosis and Treatment by Spinal Cord Stimulation
Christian de la Porte and Jean Siegfried
604 Computer-Aided Diagnosis of Lumbar Disc Herniation
W. Robert Hudgins
616 Variations in the Pattern of Muscle Innervation by the L5 and S1 Nerve Roots
Adam Young, John Getty, Andrew Jackson, Ernest Kirwan, Michael Sullivan, and Christopher Wynn Parry
625 The Impact of Patients with Nonorganic Physical Findings on a Controlled Trial of Transcutaneous Electrical Nerve Stimulation and Electroacupuncture
T. R. Lehmann, D. W. Russell, and K. F. Spratt
635 Measuring Physical and Psychosocial Function in Patients with Low-Back Pain
Richard A. Deyo and Andrew K. Diehl
643 Clinical Symptoms and Biomechanics of Lumbar Spine and Hip Joint in Leg Length Inequality
Ora Friberg
652 Dynamic Loading as a Possible Source of Low-Back Disorders
J. Sandover
659 Relocation of the Bending Axis During Flexion-Extension of Lumbar Intervertebral Discs and its Implications for Prolapse
J. A. Klein and D. W. L. Hukins
665 The Effect of Posture on the Fluid Content of Lumbar Intervertebral Discs
M. A. Adams and W. C. Hutton
672 Anatomy and Significance of Fixation of the Lumbosacral Nerve Roots in Sciatica
David L. Spencer, George S. Irwin, and J. A. A. Miller

OCTOBER

681 Lower Extremity Loads Stimulate Bone Formation in the Vertebral Column: Implications for Osteoporosis
David B. Burr, R. Bruce Martin, and Pamela A. Martin
687 Unrecognized Spinal Instability Associated with Seemingly "Simple" Cervical Compression Fractures
John M. Mazur and E. Shannon Stauffer
693 Expansive Open-Door Laminoplasty for Cervical Spinal Stenotic Myelopathy
Kiyoshi Hirabayashi, Kenichi Watanabe, Koichi Wakano, Nobumasa Suzuki, Kazuhiko Satomi, and Yoshiaki Ishii
700 The Anterior Cervical Plate
Jeffrey Gassman and David Seligson
708 Microcervical Foraminotomy: A Surgical Alternative for Intractable Radicular Pain
Robert Warren Williams
717 Comparative Strengths of Various Anterior Cement Fixations of the Cervical Spine
Gwo-Jaw Wang, Gregory D. Lewish, Steven I. Reger, Richard L. Jennings, Sandra L. Hubbard, Colin A. McLaurin, and Warren G. Stamp

722 **Kinetic Therapy for Spinal Cord Injury**
Barth A. Green, Kathy L. Green, and K. John Klose
729 **Percutaneous Radiofrequency Foramenal Rhizotomies**
David A. Herz, Kenneth C. Parsons, and Lorraine Pearl
733 **The Posterior Interspinous Fusion in the Treatment of Quadriplegia**
Richard Whitehill and Robert Schmidt
741 **Radiation Hazards in Scoliosis Management**
Denis Drummond, Frank Ranallo, John Lonstein, H. Leon Brooks, and John Cameron
749 **Incidence and Severity of Back Pain in Adult Idiopathic Scoliosis**
Roger P. Jackson, Edward H. Simmons, and Daniel Stripinis
757 **Surface Electrical Stimulation in the Treatment of Idiopathic Scoliosis: Preliminary Results in 30 Patients**
D. S. Bradford, A. Tanguy, and J. Vanselow
765 **Improvement in Pulmonary Function in Patients Having Combined Anterior and Posterior Spine Fusion for Myelomeningocele Scoliosis**
John V. Banta and Sung Min Park
771 **The Natural History of Spine Curvature Progression in the Nonambulatory Duchenne Muscular Dystrophy Patient**
John D. Hsu
776 **Surgical Stabilization of the Spine in Duchenne Muscular Dystrophy**
R. L. Weimann, D. A. Gibson, C. F. Moseley, and D. C. Jones
781 **Intrathoracic Chordoma Presenting as a Posterior Superior Mediastinal Tumor**
Howard B. Cotler, Jerome M. Cotler, Herbert E. Cohn, Harold I. Israel, and John J. Gartland
787 **The Cisterna Chyli in Orthopaedic Surgery**
S. L. Propst-Proctor, Lawrence A. Rinsky, and Eugene E. Bleck
793 **Long-Term Results of Lumbar Intervertebral Disc Prolapse**
J. C. Y. Leong, S. Y. Chun, W. J. Grange, and D. Fang
800 **Briefly Noted: Intraspinal Elastofibroma: A Case Report**
Pamela E. Prete, Michael Henbest, Joseph P. Michalski, and Robert W. Porter
802 **Briefly Noted: Chordoma**
Peter Haugård Hansen and Lars Bjørn Rasmussen
803 **Briefly Noted: Epidural Lipoma: An Unusual Cause of a Sclerotic Vertebral Body**
Mark S. Schechter and James D. Collins

NOVEMBER/DECEMBER

807 **Cervical Intraextradural Hematoma Secondary to Radicular Artery Injury: A Case Report**
James K. Sabshin, Michael L. J. Apuzzo, and Jamshid Ahmadi
812 **Calcified Chronic Spinal Subdural Hematoma Demonstrated by Computed Tomography**
Kenneth G. Rieth and Eugene A. Quindlen
817 **The Three Column Spine and Its Significance in the Classification of Acute Thoracolumbar Spinal Injuries**
Francis Denis
832 **Utilization of Somatosensory Evoked Cortical Potentials in Spinal Cord Injury: Prognostic Limitations**
Donald H. York, Clark Watts, Maureen Raffensberger, Tom Spagnolia, and Cindy Joyce
840 **An Analysis of Posture and Gait Following Spinal Fusion with Harrington Instrumentation**
Mark Wasylenko, Stephen R. Skinner, Jacquelin Perry, and Daniel J. Antonelli

846 **The Effect of Lumbar Flexion and Boston Thoracic Brace on the Curves in Idiopathic Scoliosis**
Alf Udén and Stig Willner

851 **Deformation of the Vertebral End-plate Under Axial Loading of the Spine**
Paul Brinckmann, Wolfgang Frobin, Eberhard Hierholzer, and Manfred Horst

857 **Fatigue Response of Lumbar Intervertebral Joints Under Axial Cyclic Loading**
Y. King Liu, Glen Njus, Joseph Buckwalter, and Koichi Wakano

866 **Variations in the Nutrition of the Canine Intervertebral Disc Induced by Motion**
Sten Holm and Alf Nachemson

875 **The Effect of Diagnostic Radiopaque Fluids Used in Discography on Chymopapain Activity**
A. Naylor, C. Earland, and Jean Robinson

880 **The Intensity of Work Recovery in Low Back Pain**
Gunnar B. J. Andersson, Hans-olof Svensson, and Anders Odén

885 **A Comparison of Sonography and Myelography in Clinically Suspected Spinal Stenosis**
M. Asztély, R. Kadziolka, and A. Nachemson

891 **The Rush-Presbyterian-St. Luke's Lumbar Spine Analysis Form: A Prospective Study of Patients With "Spinal Stenosis"**
J. N. Weinstein, R. L. Scafuri, and T. W. McNeill

897 **The Knee–Elbow Position in Lumbar Disc Surgery: A Review of Complications**
Nils Eie, Torfinn Solgaard, and Hallvard Kleppe

901 **Briefly Noted: Spondylolysis of the Axis: Report of Four Cases**
Mitsuo Hasue, Shinichi Kikuchi, Tatsuya Matsui, Hidefumi Machida, Takahide Kurokawa, and Osamu Kataoka

907 **Briefly Noted: Atlantoaxial Rotary Fixation: Report of a Case with Massive Displacement**
Behrooz A. Akbarnia and Mohammad Vafaie

910 **Briefly Noted: Double Lumen Sign as Demonstrated by Computerized Tomography in Spine Dislocation**
Lynn W. Boynton and Robert Kalb

912 **Briefly Noted: Computed Tomographic Demonstration of Spinal Metastases**
Ethan M. Braunstein and Lawrence R. Kuhns

915 **Briefly Noted: A New Orthosis for Immediate Postoperative Bracing in Idiopathic Scoliosis**
Gonzalo C. Ibarra-Isunza, Robert W. Gaines, and Kenton D. Leatherman

918 **Letters**